

Amendments to the Claims

The listing of claims below is intended to replace all prior listings of claims presented in the above-identified application.

1. (currently amended) An electrospray device having flow contacting portions comprising an affinity chromatographic adsorbent. comprising:
a substrate having:
 - a) an injection surface;
 - b) an ejection surface opposing the injection surface, wherein the substrate has at least one spray unit which comprises:
an entrance orifice on the injection surface,
an exit orifice on the ejection surface,
a channel extending through the substrate between the entrance orifice and the exit orifice, and
a recess extending into the ejection surface and surrounding the exit orifice;
c) polymerized separation material comprising affinity chromatographic adsorbent, wherein the separation material is associated with said electrospray device at a location suitable to effect chromatographic separation of analytes passing through said electrospray device; and
d) an electric field generating source positioned to define an electric field surrounding at least one exit orifice.
2. (original) The device of claim 1, wherein said affinity chromatographic adsorbent comprises a coated layer.
3. (original) The device of claim 1, wherein said affinity chromatographic adsorbent comprises a porous polymer monolith.

4. (currently amended) The device of claim 1, wherein said ~~flow-contacting portions polymerized separation material further comprise comprises~~ at least one through-device channel in fluid communication with a reservoir.

5. (original) The device of claim 1, wherein said affinity chromatographic adsorbent comprises an immobilized metal ion chelating ligand.

6. (original) The device of claim 5, wherein said immobilized metal ion chelating ligand comprises iminodiacetic acid, nitrilo triacetic acid, or tris(carboxymethyl) ethylene diamine.

7. (original) The device of claim 1, wherein said affinity chromatographic adsorbent comprises an immobilized ligand molecule comprising an organic compound, fatty acid, inhibitor, protein, peptide, enzyme, coenzyme, receptor, affinity tag, nucleic acid, antibody, biotin, avidin, carbohydrate, lectin, dye, or protein surface domain involved in molecular recognition.

8. (original) The device of claim 7, wherein said immobilized ligand molecule comprises a potential drug candidate or a mixture with potential drug candidates from a combinatorial compound library, benzamidine, D-biotin, biotinylated molecules, Avidin, Protein A, antisense peptides, antisense Arg-vasopressin peptide, trypsin, adenosine 5'-monophosphate (5'-AMP), Interleukin-2 receptor, polyamino acids, polyhistidine, histidine, lysine, a fragment of calf thymus DNA, sheep anti-rabbit IgG, monosaccharide, monosaccharide derivative, concanavalin A, or Cibacron Blue F3G-A.

9. (currently amended) The device of claim 1, further comprising a micro column in fluid communication with said ~~flow-contacting portions polymerized separation material~~.

10. (original) The device of claim 9, further comprising an affinity chromatographic adsorbent within said micro column.

11. (original) The device of claim 10, wherein said affinity chromatographic adsorbent within said micro column comprises a coated layer.

12. (original) The device of claim 10, wherein said affinity chromatographic adsorbent within said micro column comprises a porous polymer monolith.

13. (original) The device of claim 10, wherein said affinity chromatographic adsorbent within said micro column comprises an immobilized metal ion chelating ligand.

14. (original) The device of claim 13, wherein said immobilized metal ion chelating ligand comprises iminodiacetic acid, nitrilo triacetic acid, or tris(carboxymethyl) ethylene diamine.

15. (original) The device of claim 10, wherein said affinity chromatographic adsorbent comprises an immobilized ligand molecule comprising an organic compound, fatty acid, inhibitor, protein, peptide, enzyme, coenzyme, receptor, affinity tag, nucleic acid, antibody, biotin, avidin, carbohydrate, lectin, dye, or protein surface domain involved in molecular recognition.

16. (original) The device of claim 15, wherein said immobilized ligand molecule comprises a potential drug candidate or a mixture with potential drug candidates from a combinatorial compound library, benzamidine, D-biotin, biotinylated molecules, Avidin, Protein A, antisense peptides, antisense Arg-vasopressin peptide, trypsin, adenosine 5'-monophosphate (5'-AMP), Interleukin-2 receptor, polyamino acids, polyhistidine, histidine, lysine, a fragment of calf thymus DNA, sheep anti-rabbit IgG, monosaccharide, monosaccharide derivative, concanavalin A, or Cibacron Blue F3G-A.

Claims 17-26 (canceled).

27. (currently amended) An electrospray device according to claim 1, further comprising a monolithic microchip having an array of multiple inlet reservoirs

injection surfaces in fluid communication with a respective one of an array of multiple nozzles exit orifices through a channel and a capillary tube in fluid communication with an inlet reservoir injection surface, wherein at least one of the reservoir injection surface/channel and capillary tube contain at least one immobilized affinity chromatographic adsorbent.

28. (currently amended) The device of claim 27, wherein said affinity chromatographic adsorbent is immobilized as a coated layer on the inner wall of said at least one reservoir injection surface/channel and capillary tube.

29. (currently amended) The device of claim 27, wherein said affinity chromatographic adsorbent is immobilized as a porous polymer monolith in the lumen of said at least one reservoir injection surface/channel and capillary tube.

30. (currently amended) The device of claim 27, wherein said affinity chromatographic adsorbent is immobilized by either covalent bonding or non-covalent adhering onto the inner wall of said at least one reservoir injection surface/channel and capillary tube.

31. (currently amended) The device of claim 27, wherein said array comprises 96 in 8 columns × 12 rows or 384 reservoir injection surface/nozzles exit orifices in 16 columns × 24 rows containing one or multiple affinity chromatographic adsorbents in the form of porous polymer monoliths or coated layers.

32. (currently amended) The device of claim 31, wherein said array comprises multiple affinity chromatographic adsorbents in a pattern such that different rows or columns have different affinity adsorbents while each reservoir injection surface/channel in the same row or column has the same adsorbent.

33. (original) The device of claim 32, wherein said different affinity adsorbents are prepared from one support matrix with different affinity ligands.

34. (currently amended) The device of claim 27, wherein the affinity chromatographic adsorbents in the reservoir injection surface/channel are different than the affinity chromatographic adsorbents in the capillary tube.

35. (original) The device of claim 27, wherein said affinity chromatographic adsorbent comprises an immobilized metal ion chelating ligand.

36. (original) The device of claim 35, wherein said immobilized metal ion chelating ligand comprises iminodiacetic acid, nitrilo triacetic acid, or tris(carboxymethyl) ethylene diamine.

37. (original) The device of claim 27, wherein said affinity chromatographic adsorbent comprises an immobilized ligand molecule comprising an organic compound, fatty acid, inhibitor, protein, peptide, enzyme, coenzyme, receptor, affinity tag, nucleic acid, antibody, biotin, avidin, carbohydrate, lectin, dye, or protein surface domain involved in molecular recognition.

38. (original) The device of claim 37, wherein said immobilized ligand molecule comprises a potential drug candidate or a mixture with potential drug candidates from a combinatorial compound library, benzamidine, D-biotin, biotinylated molecules, Avidin, Protein A, antisense peptides, antisense Arg-vasopressin peptide, trypsin, adenosine 5'-monophosphate (5'-AMP), Interleukin-2 receptor, polyamino acids, polyhistidine, histidine, lysine, a fragment of calf thymus DNA, sheep anti-rabbit IgG, monosaccharide, monosaccharide derivative, concanavalin A, or Cibacron Blue F3G-A.

Claims 39-55 (canceled).